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Courtesy of the Horticultural Department

WINDBREAK OF NORWAY SPRUCE ON THE FARM OF WILLIS T. MANN

The Apple Trees are Seven Year Old Baldwins, and will Average a Bushel to the Tree this Year

THE CORNELL COUNTRYMAN

VOL. 3. OCTOBER, 1905 NO. 1

APPLE GROWING IN WESTERN NEW YORK

By Willis T. Mann.

APPLE growing is one of the most important agricultural interests of Western New York. Within the limits of the territory thus, somewhat vaguely, described, there are about eight million bearing trees with a productive capacity of approximately ten million barrels. This amount is exceeded only by two states besides New York,—Ohio and Pennsylvania, and it also approximates one-fifth the usual commercial crop of the United States. It has reached its greatest development in four counties bordering Lake Ontario,—Niagara, Wayne, Monroe and Orleans. These four counties contain more than three million bearing trees and have a productive capacity of nearly four million barrels, an amount that is equalled by only twelve states, and if we take commercial availability into account, by considerably less than that number.

The acreage of apple orchards included in this territory is about two hundred thousand. We have no data by which it is possible to estimate with any degree of accuracy the value of these orchards. Some of the better commercial orchards have given incomes for a series of years that would justify a valuation of one thousand dollars or more per acre. If we should estimate the average orchard at two hundred dollars per acre, which would seem to be very conservative, it would indicate a valuation of forty million dollars. However, it is certain that in the counties of commercial importance, apple orchards give tone to farm values, and the price of farms is largely based upon the amount and character of the orchards upon them.

Favorable climatic conditions and soils of great variety make it possible to raise a great number of varieties in a high degree of perfection. The earlier plantings, which were for family use and not for commercial purposes, were largely of varieties of interest and value to the amateur but not now valued by the commercial grower, owing to special liability to attacks of insects or diseases, or to some other unfavorable characteristics of tree or fruit. Some of these old orchards still stand as reminders of simpler days, when the apple had no commercial value, and every fancy of eye or palate might be gratified. Many of these old varieties are of high quality or possess other features of special merit, and might now be raised successfully for a personal market. They are not, however, of that rugged nature that commends them to the general commercial grower, or to the "trade," and so they have had to give way to fruits of the modern commercial type, of which the Baldwin is the great leader in this section. The Rhode Island Greening, the Spy and the King, much better in quality, are important commercial varieties but do not equal the Baldwin in popular favor for commercial purposes. New varieties of the type of the Duchess of Oldenburg and the Wealthy are finding popular favor on account of great productiveness and early bearing.

The soil is not only in great variety, but it is of high potential quality. It was formerly thought to be impoverished or exhausted but more recent experience has shown that under proper treatment it not only contains all the elements needed for the health and vigor and productiveness of the tree but in some cases, at least, the addition of mineral fertilizers is of no apparent value. The growers are coming to understand that the mechanical condition of the soil, its supply of humus and of moisture are essential

factors of fertility and so the growth of hay and farm crops in orchards, has given way to tillage and cover crops. But with the increase of knowledge of scientific principles, and of experience it is recognized that it is a question of conditions rather than of methods, so there is great diversity of practice even among the most successful growers, though the tillage and cover crop system has been the most significant feature in soil management in those sections of greatest commercial importance.

Under the old conception of the fruit as a secondary product, and the farm crop as first in importance, the trees were trained high to facilitate working under the branches. The tillage idea still requires that the branches shall be sufficiently high to permit teams to pass under them, but the desirability of lower heads than formerly is generally recognized. In many of the older orchards in which the trees were planted too close and were permitted to remain, the lower branches have died from lack of air and sunshine and the trees have become very high and now afford but little profit owing to the difficulty of proper spraying and the great cost of harvesting the fruit. Many of our most far-sighted growers, however, recognizing the need of air and sunshine for health and vigor of tree and fruit, have trained their trees so that they have ample room, and the lower branches have remained in full vigor. Such trees have a great spread of branch and great productive capacity. The increasing need of thorough spraying and the difficulty of treating high trees, as well as the greatly increased cost of harvesting the fruit is impressing upon the growers the need of a minimum size and height of tree.

Without doubt the most characteristic feature of apple growing in Western New York at the present time is the general use of the spray pump. About fifteen years ago it was first used in a practical way by some of the most progressive growers. For several years its use was considered experimental and for only about ten years has it been generally acknowledged as a practical operation. Since that time its use has become general in all the apple growing sections, and today the spray "rig" with its high tower upon which the operator stands, and the long lines of hose and extension rods is one of the familiar sights of the fruit growing sections during the spring. The small hand pumps and barrels which were first used, even by the largest growers, have given place in many of the larger orchards to power machines operated by steam or gasoline. By this operation the trees and fruit are protected to a large extent, from parasitic insects and fungus diseases, thus improving the quality of the fruit and insuring a greater regularity of crop production.

Storage warehouses and evaporating establishments have greatly increased in number, thereby giving greater stability to the markets, and making it possible to utilize the inferior grades.

The harvesting of the crop requires not only all the available help of the country districts but many hundreds of men and women from the cities. The difficulty of securing an adequate supply of help to properly handle the crop within the limited time in which the season permits, constitutes a serious problem with growers and requires the utmost economy in methods of handling. The fruit as picked from the tree is usually placed upon a sorting table where it is rapidly sorted and the better grades put in barrels which are delivered to the storage house, the inferior grades are delivered to the evaporators.

There is perhaps, no branch of farming that illustrates better the remarkable improvement of the past twenty years, in agricultural conditions. The progress in apple growing in these years has not been so much in the increase of acreage as in the increase in the knowledge of scientific principles and their successful application to existing orchards. The value of scientific investigations and teach-

ing have been demonstrated and the natural conservatism of farmers to the application of scientific theories to practical agriculture has been overcome and the value of agricultural education is generally recognized. The ready acceptance, by the farmers, of these new ideals was no doubt made possible by the increasing difficulties of production and the depressed condition of general farming, during the years immediately preceding and following the beginning of the last decade. The great increase in insects and fungus parasites, and general neglect had resulted in repeated failures, until growers began to lose faith in the value of apple orchards, and in their ability to make them productive. It was thought by some that there might have been an unfavorable change in the climatic conditions, or that the soil had become exhausted of the elements of fertility.

The experience of the past ten or twelve years, however, have shown that we were, in reality, face to face with a new era in agriculture. One in which the farmer must become a student and mentally alert, as well as a man of physical activity. We have studied insect life in its many forms; we have learned about fungus diseases and their destructive powers; we have studied soils ,and the conservation of moisture, and the use and effects of tillage, and of cover crops, and the relation of micro-organisms to soil fertility; we have learned that a farm crop or hay in an orchard is inconsistent with good horticultural practice. We are also learning the importance of sunshine and air, and of ample space if we want fruit instead of timber. We have introduced and developed the practice of spraying to protect our plants and fruits from insect and fungus parasites. We have learned something about these and many other things and our practice has reflected in some degree, our knowledge and as a result our orchards have again become productive and we have become optimistic in regard to our ability to solve new problems and to control adverse conditions. We realize that new problems are continually rising and that our present success is not a finality, and we are aware of the growing competition with other apple producing sections; but, we again believe that the soil and climate of Western New York are peculiarly adapted to the apple and that it only requires skill and intelligence to assure success in production; and, that the great productive capacity of our orchards as compared with many other sections; the quality of our fruit for commercial purposes; the multiplication of storage warehouses where it may be held many months, giving it the character almost of a staple; our location with reference to the great markets of our own and foreign lands; and our shipping facilities, are all favorable conditions that tend to our advantage.

The commercial side of agriculture has been neglected but the great productiveness of our orchards is compelling us to study all those questions that relate to the commercial value of our product. We are interested in the methods of handling in the orchards and storage; and in the kind of package and manner of packing; the proper grading and classification; facilities and methods of transportation; the output of competitive territory, and the probable consumptive demands; and even in those social and political conditions which may affect the financial condition of consumers and their ability to purchase our products.

The orchards of Western New York are not large individually. There are few, if any, great plantations, and these improvements have been a result of a popular movement which denotes a high average of intelligence. In each community there were individuals who first demonstrated the value of improved methods but these were quickly followed by others. Men of very moderate acreage often demonstrated most conclusively the value of intensive methods of culture and treatment.

But all have been ready to acknowledge the value of the scientific investigations of the specialists of the agricultural college and the experiment stations.

THE GRAPE IN WESTERN NEW YORK

By Uncle John.

ONCE upon a time, about a quarter of a century ago, there was a man with one talent who planted a vineyard of one acre. Grapes were then worth about forty cents per basket, which gave him an income, that from his point of view and also that of his one talent neighbors, meant prosperity.

In due time he died and went to his fathers. The ownership of the one acre vineyard fell to his son, who happened to be a one talent man also. The prosperity of the sire was not for the son's enjoyment for but a few years. A psychological disease swept through the country, known as "Grapephobia."

Some people had more concern for the opportunity to plant grapes than for the salvation of their immortal souls. Many hundreds of acres of common side hill cow pasture became vineyards.

The price of the fruit fell from forty cents per basket to ten cents. The profit in a basket of grapes was so small that it could be determined only by a process of decimal fractions and that so small as to seem of no account when compared with ones needs. It was only when the baskets were aggregated in a carload that a vineyard seemed worth while. The production of grapes by the carload instead of by the basket was beyond the man with one talent and one acre. That was his capacity and he could not develop farther, any more than he could lift himself by his own bootstraps.

During the disease — grapephobia, spoken of, there drifted into the business a few men having ten talents. They had capital and executive ability and knew the value of technical farm knowledge. They were aware of the importance of doing the three rights in conjunction; viz, the right thing, the right time, and the right way.

Thus began a new era in the grape industry, that of estimating the unit of profit by the carload rather than by the single basket, and there followed a new classification of vineyardists—the basket vineyardists and the carload vineyardists. The basket men are slowly dropping out of the business. Not by selling their land and homes to the carload vineyardist and becoming his hired men as some self-styled economic writers would lead us to think, but rather by taking up some subsidiary crops, for the details of which the carload man has no time.

I am glad of the opportunity to give the above picture of a situation that ought to interest young men who are students of agriculture and who in the main will find occupation in teaching academic agriculture rather than demonstrating bread and butter agriculture. The latter is not an over-crowded profession for there is today more room at the top than there was twenty-five years ago. I have a friend who says I may be right, but the climb is harder, for the spare room is higher up.

The grape belt of Chautauqua means a valley lying along Lake Erie from three to five miles wide. It begins, say at Silver Creek and laps over in Pennsylvania to Harbor Creek.

Sometimes we say the area planted to grapes is 28,000 acres. When we feel boastful and wish to magnify ourselves, we call it 30,000 acres. The total yield last year was about 6,000 cars. About 3,000 tons of this went into grape juice and something less than that into wine. The Italians are becoming largely interested in the production of the latter which is made to suit the taste of their countrymen.

Writers who have "read up" more than they have "worked up" on the subject of grape culture open a chapter with "always select a southern exposure." Of the 6,000 cars produced last year, not a carload grew on soil not having a northern exposure.

Ten years ago we spoke of the yield per acre as four tons, very much as we speak of three miles per hour as being a fair gait in walking. A vineyardist having a greater yield than that had the right to brag—less than that, he should apologize. Those were days when we put up 40 to 60 buds to the vine but we don't do it now. At present 25 to 35 buds is a fair number. This decline is due to bugs, slack cultivation and impoverishment of soil.

Plenty of people will differ with me in placing insects as the chief factor in the decline. They have a prejudice against spraying—the remedy for insect troubles. They may feel that ultimately it will have to come, but like going to the dentist with an aching tooth, they will jam some cotton and camphor into the cavity and let it go for the present.

I estimate the new acreage planted last spring as about 2,000 acres. This should not be considered as an increase of acreage, but rather as making good the decline of the old. The popular view is that it is better to install a new vineyard than to pull an old one out of the grave and bring it back to life.

GRAPE PICKING SCENE NEAR CHAUTAUQUA, N. Y.

AUTUMN

Every season hath its pleasures;
Spring may boast her flowery prime,
Yet the vineyard's ruby treasures
Brighten Autumn's sob'rer time.

Moore.

HORTICULTURAL INSPECTION IN NEW YORK

By Percy L. Husted.

THE practice of horticultural inspection is comparatively new. The knowledge that some ills are contagious and by the exercise of control preventable in their spread, is knowledge which led to the rules of restriction laid upon the ancient leper.

Owing to the increased light which science has shed in recent years upon the nature of contagious troubles, the benefits which properly adapted measures of control may give have become much more apparent, and men have been quick to fight when the nature of their enemies was disclosed.

Those who carry out campaigns of this order can find use for executive ability. It was a game of war which Col. Waring waged with success against yellow fever in Havana. He applied not so much the doctor's skill as business enterpise. He added the element of action to the knowledge which was common property of both Spanish and American physicians.

The efforts at organized control of plant pests and diseases, represent the efforts of practical men who realize that the spread of specific troubles can be retarded by means within the control of a body of citizens although beyond the control of any single individual. The strength of union is necessary to effectively use prevention as a cure, and the extent to which people will unite when called on, determines the limitations of such efforts. Some personal liberty must be curtailed for the public good, and just here, I believe, is the reason America is behind Germany and some other nations in the growth of organized measures of prevention. An American citizen probably more than any other holds his home as his castle, and his rights as an individual far higher in general than the rights of his neighbors. Yet when aroused by impending danger which he is convinced is real, no citizen probably goes to work with more zeal to use whatever measure of protection may seem efficient.

Were all individuals equally well posted, all might be ready to join in measures for common welfare just as they join in putting out a village fire, and laws would be unnecessary; but particularly with new plant pests, there are sure to be unconvinced parties who will want to experiment until perhaps the experimenter loses control and a whole community suffers.

It was noted how nurseries serve as centers for the distribution of new plant pests and it followed that care of these small centers would be a protection to a wide territory. While other troubles were specified in the law and the provision was so made that any dangerously injurious disease or pest would be covered, yet the immediate object was to retard the spread of the San Josè scale and to provide a system in readiness for another such emergency.

The scientists who have given their attention to this question believe that a sufficiently empowered business system could have eliminated the beginnings of the San Jose scale in the Eastern States, but they realized in 1898, when the first law for the inspection of nurseries went into effect, that it was no longer a question of extermination, but one of putting off as long as possible the day when, unless a natural enemy should arise, every fruit grower must fight the pest for himself.

I think the work of seven years has shown that those whose faith laid the foundations of inspection work did not reason in vain. Had nothing aside from nursery inspection been done the gain would be well worth the cost. Few realize how constant is the interchange of stock among nurserymen nor how nursery products are sent each season to every corner of the land. With such infested stock present as there was to begin with, I cannot see that more than seven years would

be required to infest almost every other nursery and at the same time leave no community uninfested.

In my own district the fifty-five nurseries inspected showed eleven cases of San Jose scale when first examined. In one case only did it appear that infested stock had been distributed, but the time was at hand for a general distribution to begin. Over nine thousand trees were destroyed that season in clearing those eleven cases while the succeeding season there were about two and one half per cent as many destroyed, part of which were from one small nursery not found before. In no year since has the number of nursery trees infested with scale run over three per cent of the number destroyed six years ago.

The inspection of the 460 nurseries in New York state takes place whether desired by the owners or not. In some states inspection on request of nurserymen has developed the fatal defect that those nurserymen most in need of inspection will seldom call for it. They are likely to be either not so well informed or engaged chiefly in supplying a demand for ornamental stock, a trade not too discriminating where plant diseases are concerned. They may be small growers who desire to escape the charges made in some states. In New York all expense is paid from public funds, and this is just, for the benefit is to the whole state.

A year of practice in a section where scale is present works a great improvement in the efficiency of a nursery inspector, for no matter how well schooled he may be, his eyes will be quickened and he will learn how best to divide his attention.

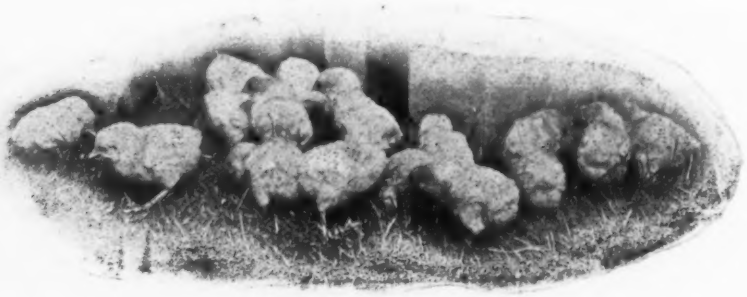
Where stock of value is destroyed samples for both parties concerned are preserved in case disputes arise. Mounts are made for verification in such cases as well as in cases where there may be too little material to afford a good opportunity for judging by external characteristics.

The construction of fumigators and the supervision of their use entails some work. Nurserymen using the process for the first time are always desirous of some instruction before handling the chemicals, which as they understand, may cause fatal results to a bungling operator. By law nurserymen are required to fumigate all susceptible stock within one half mile of an infestation of San Jose scale, and for two years after an infestation has been destroyed, if such infestation be of a year's standing. The fumigation with hydrocanic acid gas is the most perfect process known but is regarded as only the complement of inspection. The aim is to leave no stock with which a nursery can work damage in case a party without scruples omits to fumigate as required by law. Troubles not so readily discernible as is the San Jose scale may certainly be overlooked by the closest inspection methods, but is not apt to escape for more than a single season, for after a year's spread detection will be easy. With fumigation the factors which may render the process ineffectual are air leaks, impure chemicals, defective circulation, and mudded trees. The process was once regarded as more certain than was warrantable and was supposed to kill borers in stock with all other breathing insects. Tests have shown however that borers are too well protected to suffer even from prolonged exposure, and the amount of fumigation which the scale can withstand has been found to be higher than is used in some Southern states. The standard formula in New York is high and to test the matter of reported damages through fumigation, a careful series of tests was made using strengths far beyond any before published in experimental records. It was shown that increasing the standard strength to quadruple the normal strength worked no damage in the Spring and that no appreciable loss showed in stock fumigated at eight fold the normal formula though the growth was less on lots of peaches treated at five fold strength or more.

Shipment inspection is a branch of work which has been made doubly efficient since the amendment of the statute requiring transportation companies bringing in nursery stock from their states to give notice of all such shipments. Notices showing shipments coming from suspicious points or going to New York nurserymen for redistribution are very prompt. The telegraph and telephone are in constant use through the shipping period to direct the work of inspectors who are on the road by day as well as by night through this rush period. In some years over a hundred infested shipments have been found and condemned either wholly or in part for the San Jose scale, and many thousands of seedlings for crown gall. Shipments found infested may be returned to consignors if desired and this is often done because the purchaser will not accept the goods when the conditions are known. In less than one half of one per cent of the cases purchasers have themselves found the condition of goods to be wrong. Beside attending to the immediate shipment in hand, a notification is sent to the shipper and to the authorities of the state whence the shipment originates in order to prevent recurrence of the occasion for complaint. Similarly other state authorities give notifications when anything is found wrong with New York State nursery stock, but in the seven year's work less than a doen of these complaints have been on account of these infestations.

Peach yellows is a disease controllable in no way yet known, other than by the destruction of the affected trees. Nursery inspection avails little in respect to this disease, but in Michigan there has been a splendid example of the gain possible with an adequate yearly orchard inspection which eliminates the yellow trees before much spread takes place. The same system has been under trial for three years in two large peach belts of New York, one in Niagara county and one in Orange. Each contains over one hundred thousand trees and an inspection has been made of each. Something over thirteen thousand trees were condemned the first season and since then the number has been greatly lessened. Particularly in the Niagara belt, near Olcott, have the results been encouraging.

The list of dangerous pests known to other lands but not yet introduced into this country includes several which may be expected at any time, and I believe that in cases which will undoubtedly arise in the future much may be gained by prompt measures. I believe also that orchard inspection work will grow in usefulness as orcharding becomes a business in itself rather than a side issue in farming.



AUTUMN COLORS

By R. W. Curtis, '05, M. S. A.

OCTOBER days are here! By the blue mist on the hills and the yellow Autumn light, the maples flaming in the swamp, the Woodbine and Sumacs all crimson and red and the Elm leaves showing golden here and there—by these signs we know that Fall is near. Soon the frost will be on the pumpkin and the woods ablaze with Autumn color.

Thoreau says: "When the leaves fall the whole earth is a cemetery pleasant to walk in." Surely now is the time of the woodland harvest. The countryside is hung with ripened leaves of every shade and hue. It is Nature's great Fair Day and there are entries of all kinds and descriptions. The whole vegetable kingdom is out for display and every plant has its color.

As early as the first week in September the show begins. The Woodbine or Virginia Creeper is one of the first to enter. Even before the crimson flush creeps over the leaves and while its berries are still green I have seen the branching stem of the fruit cluster turning a bright red. A month later this commonest of all vines is a feature in the Autumn landscape and drapes rocks, stumps, fences and whole housesides with its crimson mantle.

Now, too, we notice the Boston Ivy, its near relative, and the vine of vines for stone buildings. On September 4th, I have marked its leaves beginning to turn and by the first week in October the vine is a blaze of scarlet and red. Its colors are brighter than those of the Woodbine and more lively also because of the beautiful gloss on its leaves.

At the same time come the Sumacs. What would October be without the Sumacs! The coloring of these fiery ones is beyond description. The big, velvety Staghorn grows in colonies everywhere. They flash out from the hillsides and greet us warmly at every turn in the road. Their long leaves look like great feathers and their leaflets hang downward "as though dipped in blood." Even after their leaves fall the crimson heads of these sumacs stand out big and stiff against the sky.

Very different in stature is the little Aromatic Sumac. We come upon this trailing shrub growing in clumps along fences and in waste places. Its prostrate habit renders it an excellent plant for border masses in front of larger shrubs and in Autumn its hairy trifoliate leaves vie in gorgeous colors with any of its larger relatives.

And then there are the other Sumacs, the poisonous ones. Of these the tall Poison Sumac grows only in swamps or wet places and in the fall "blazes its sins as scarlet." The other poisonous Sumac and the worst poisonous plant in America the Poison Ivy, grows everywhere in some sections of the country, climbing over fences and around trees and also reveals its true character only by its stains in Autumn. The Autumn color of the Sumac group is red, that of the Woodbine is crimson. All these plants make strong exhibits in Nature's annual display.

Another prominent Autumn group is the Maples. The Red Maple easily stands first with the Sugar Maple second. The Red Maples are the first trees to change in the fall. Even before the Woodbine and the Sumacs and while all the other trees are still green some of these maples down in the swamps will blaze out in full color. But this early brilliancy is forgotten in the full splendor of the October show. At this time nothing can equal the Autumn colors of the Red Maples. I have seen a whole tree with leaves the clearest, purest yellow, while by its side stood another with leaves brilliant red, crimson and scarlet.

How well I remember one of these trees on the outskirts of our town. I was coming home at the close of an Autumn day. Turning down a side street I came full upon a Red Maple.

It was a young tree and was one mass of crimson color. Its beauty radiated to the small unpainted house at its side and lighted up the whole place. What a sight to welcome the master of the house when he came home at night! Such trees have their color value. There ought to be more of them around our homes and along our streets. It would pay to plant them.

And after the Red Maples come the Sugar Maples and with them the Elms for these two are the trees of the people. By the middle of October the Sugar Maples are all tinted with red and yellow. Some trees are solid yellow while others mingle both colors on the same leaves. And now also the streets are literally roofed and draped with the golden yellow of the Elms. The foliage of these trees hangs in billowy masses and their mellow ripeness seems almost to impart a fragrance to the air.

Along the streets also are the Soft or Silver Maples for, next to the Sugar Maple, this tree is the most commonly planted maple. There are cut leaved varieties of this maple but they all usually turn a clear yellow in Autumn. Very similar in color is the Norway Maple which is a cultivated tree of dense, symmetrical head pleasing at all times but particularly so now. The Ash Leaved Maple or Box Elder, whose leaves look like an ash but whose fruits show its maple relationship, is also yellow tinted but much lighter and not so rich.

And among other yellow ones there are the Willows and Poplars, and also the Basswoods with their big heart-shaped leaves lopsided at the base. And there are the Birches! The whole Birch family is yellow colored except the Blue Beach (the Ironwood with smooth bark that looks like muscles), and the Wild Hazel-nut, both of which are tinged with red and crimson. And of course we know the Horsechestnuts with their five or seven leaflets like the fingers of one's hand. These are yellow as is also the Hackberry and the Tulip or Whitewood. And the Hickories, they also go with the yellow ones unless we think there is too much brown in them. In this case, being on the verge, they will serve to suggest some of Nature's browner Autumn tints.

Of these the Beeches are the most beautiful. Their first orange tinge is soon replaced by the warm, glossy brown of the mature leaf. At this stage the Beech leaves take on a neatness and firmness that is a delight to the eye. Quite similar and a close second are the Chestnut leaves, long, taper pointed, beautifully scalloped and of a smooth brown color. The Sycamore or Buttonwood leaves are also a shining brown. Then there are the tender Sassafras leaves and the big, firmer ones of the Magnolia or Cucumber tree. All these are brown as is also the little Spice Bush.

These colors I have briefly cited are not all of Nature's Autumn tints by any means. The fields and woods are full of colors. They catch the eye at every turn and are as varied as the rainbow and as many as there are plants. I have spoken only of some of the larger woody plants. Many more might be mentioned. Not a word has been said about the Viburnums and yet how we admire the little maple leaved one and how delicate are its purple hues. And there also are the Huckleberries growing low and covering the rocky slopes with color, and the Bittersweets trailing everywhere. One, the little Nightshade, has purple leaves and red berries on steel blue pedicles and the other, the more hardy Climbing Bittersweet, has yellow leaves and orange berries red inside. And then the Dogwoods—how gorgeously they are attired! The Red Osier Dogwood has crimson leaves and red stems surpassed only by that brilliant one, the Flowering Dogwood, the most beautiful of them all. Who has not gathered Dogwood blossoms in Spring, but who knows this little tree in the Autumn. Long will the sight be remembered. It is worth a trip to the woods to bring back the memory of such a vision.

And surely we must not forget the purple brown Ashes and the Shad-

bushes, a modest red and the Low-Running Blackberries like blood stains on the hillside and the Tupeloes flaming on the edge of the woods. And there are the Oaks, and Oaks are strong at all seasons. If you have Chestnut Oaks watch them, especially the young vigorous suckers. You will be rewarded by such blending of colors as you never saw before. And if there are Scarlet Oaks, be patient for these crimson colors do not glow until November.

Some one has said, "Contentment and happiness are results of thinking and one thinks much when he sees much." There is as much beauty in the world as we are able to see. With his eyes open to Nature the naturalist finds in the out-of-doors the fountain of perpetual youth. Every new experience has an added charm and each recurring season its new delight. Life becomes what he makes it and it means more every year the better he knows the Autumn colors.

METHOD OF MAKING PRIZE BUTTER

FOUR tubs of butter were sent to St. Louis as regular entries in four monthly contests conducted by the National Creamery Buttermakers' Association assisted by the United States Department of Agriculture. Each tub was about fifteen days old when scored and the scores were as follows June, 93; July, 94; September, 96; October, 93½ . The average of these scores was among the very highest and Mr. A. C. Brown, Dairy '04, deserves much credit for his success, especially in view of the fact that his creamery is located so far from the place where the butter was judged. His method which was about the same for each entry is described as follows:

Scrupulous care was taken to clean and sterilize every vat, separator, pump, pipe or other utensil which would come in contact with the milk, cream, or starter. The butter was made from milk brought by numerous patrons and no milk was especially selected. Heavy cream testing 40 per cent. to 45 per cent. fat was run from the separators at 70 degrees F. The cream was promptly cooled to about 64 degrees F. at which temperature it was ripened, having been diluted with 5 per cent. of clean, good flavored morning's milk, and 15 per cent. nice commercial starter. In about eight hours after separating, the cream showed 55 per cent. acidity and was cooled rapidly to 48 degrees F. by the use of ice water around the vat. The cream was ripened in the common open vat and it was frequently stirred while ripening. Early the following morning the cream showed about .6 per cent. acidity and was churned at a temperature of about 50 degrees F. The churn was stopped when the granules of butter were about as large as small wheat kernels. One wash water was used at the same temperature as the buttermilk. Butter was salted at the rate of ¾ ounces to one pound. The period of working lasted from one to two hours, the butter being worked slightly and then allowed to stand for some time before being worked again by a few revolutions. The butter was packed in selected thirty-pound tubs that had been steamed and soaked in brine. It was then chilled for twenty-four hours, then packed in a sixty-pound tub and wrapped with several thicknesses of building paper and burlap and shipped by express to St. Louis.

The Cornell Countryman

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MISS L. P. HASTINGS,
C. J. HUNN, } - Associate Editors

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OCTOBER, 1905

The Cornell Countryman

HEREWITH, we present you with the first number of *The Cornell Countryman* for 1905-6. As pointed out in the previous editorials, *The Countryman* stands for the best there is in Agricultural Education and as such the members of the present board not only feel the responsibility devolving upon them to maintain the high standard of excellence already reached, but they take pride in their determination to add their annual share to the material betterment of the paper. The purpose of the paper is to put in close touch with each other all past and present students of our College, and to keep them accurately informed of Cornell doings. At the same time ample space will be provided for discussions of the most interesting advances in Agricultural Science and practice. *The Cornell Countryman* is a college paper published by college students. Moreover, all work done by the board is done gratuitously; hence an obligation devolves upon every one of us to make *The Countryman* a binding link of pride amongst us. The two preceding boards have been thoroughly in sympathy with this idea, and the incoming board feels duly grateful for the opportunity thus opened to them to give our readers the best that is in us.

New faces are appearing amongst us as well as those of old students. *The Countryman* extends to you all a hearty greeting, and solicits the earnest support of every one. As pointed out by Mr. W. H. Collingwood in his article, "The Agricultural Students' Obligation," which appeared in *The Countryman* for October, 1904, it is a privilege to go to an Agricultural College at the public expense. But this privilege carries with it the obligation to render to Alma Mater and the State services according as they have received. The editors earnestly hope that no member of the College of Agriculture will hesitate to come to us with contributions of articles, news items, or suggestions of any kind.

The Agitation for Reciprocity

SINCE 1828, the United States has enjoyed special tariff concessions from Germany according to a treaty entered into by the Kingdom of Prussia. Under this arrangement, exports of Agricultural products from the United States to Germany have grown until today Germany is the best customer of the United States with the one exception of Great Britain. On the first day of March, 1906, this treaty ends and our merchants will then be forced to pay the autonomous tariff rates. Meanwhile, however, Germany, to relieve the strain at home, has entered into reciprocal tariff relations with Italy, Belgium, Roumania, Switzerland, Servia, Austria-Hungary and Russia, which grant to them a specially low rate.

The United States might compete with these countries if all were on the same footing, but to have the tariff raised to the United States and at the same time greatly lowered to these

seven European nations, practically shuts the door against American exports, the greater part of which consist of farm products. As an illustration of how this will work, we will quote the following figures from an editorial in the "Outlook" of May 27th: "The value of the American wheat that Germany imported last year was nearly $6,000,000. The duty paid on it (under the reciprocity concession) was 83 cents per 100 kilograms (220.4 pounds.) Next year, under the new tariff, the duty will be $1.78, but Russia and Austria-Hungary will pay only $1.30. The amount of our corn exports to Germany last year was more than $7,000,000. It paid a duty of 38 cents per 100 kilograms. Next year it will pay $1.19, while corn from the treaty countries will pay only 71 cents. We have been sending American apples to Germany in considerable quantities (this trade amounted to $888,000 last year) Heretofore this fruit has been admitted free, but under the new tariff a duty of $2.38 per 100 kilograms will be exacted while apples coming from Italy, Belgium, Servia, Roumania and Switzerland will pay half rates. In the case of dried fruits, of which we exported more than $2,000,000 worth to Germany last year, there is a still greater discrimination."

In view of these facts the grain farmers and stockmen of the west have become alarmed and a movement which culminated in a convention held in Chicago on the 16th and 17th of August, presided over by Alvin H. Sanders, editor of the "Breeders' Gazette," and attended by 600 delegates representing 7 live stock associations, 21 agricultural associations, 7 delegates appointed by governors, 16 manufacturers' associations, and 40 commercial organizations. It may be noted here that this list is conspicuous on account of the almost total absence of horticultural organizations, there being only two included. This convention was eminently successful and called loudly for "immediate reciprocal concessions by means of a dual or maximum and minimum tariff as the only practical method of relieving at this time, the strained situation with which we are confronted." In view of this, Congress was urged to take action at the earliest time possible, and it was recommended that a committee be appointed to stir up and keep before the people the work for which the convention was called.

A Winter Fair in New York State

THE New York State Breeders' Association, which was incorporated February, 1904, is introducing a novel innovation this year in the form of a winter fair to be held at Syracuse, December 19, 20 and 21. At a recent meeting of the Board of Directors it was voted to accept the title in its widest meaning, that is, an Association of Breeders of both plants and animals.

While fat stock and dressed carcasses will be the most important features, special emphasis will be laid on the educational features, for at each session there will be lectures by men and women of national reputation. Demonstrations on the cooking of meats will be of especial interest to housekeepers. It is interesting to note that prizes are being offered for the best bred corn, beets, timothy, clover, etc., as well as on live stock. It is specified that competition for best lamb killed, dressed, and packed for New York market is limited to farm-

ers, farmers' sons and students of Agricultural Colleges. Also competition for best pair of chickens, killed, dressed, and packed for New York market is limited to farmers, farmers' wives, sons and daughters, and students of Agricultural colleges.

No person not a member of the association can enter exhibits, but anyone over 18 years of age may become a member by making application through the secretary to the Board of Directors, and paying a membership fee of $1.00.

GENERAL AGRICULTURAL NEWS

Mr. D. Everett Lyon has given in "Country Life in America" for September, a very interesting and instructive article on the new Causacian bees. We glean from his account the following facts.

The United States Government, with its efficient organization has one department, the Apiary, of which little is known by most persons. Many experiments have been carried on at that place, and the one now in progress will without doubt revolutionize bee-keeping.

The German or common brown bee has existed in America for about 200 years and has, in this period attained a wide distribution. The usefulness of this species is handicapped in several ways. It lacks energy in honey gathering, is not very prolific as a breeder, and is a poor defender of its home. On the other hand, this species is very savage under manipulation. The Italian bees were imported in 1860, and have proven themselves superior to the German in every way. In 1880, the Cyprian bees were brought to America, and these have in their turn proven superior in honey gathering, their only fault being their extreme excitable nature.

In 1902, the Caucasian bees were imported for the first time into this country. Pure bred queens, after mating in their native land, have been used for this experiment. They are extremely prolific in breeding, and are remarkably energetic as honey gatherers. But the most promising characteristic is their practically non-stinging habit. They are not entirely stingless, but may be called so because they only sting when their hive is robbed by other bees, or upon a severe jar on a very cold morning. If this species can be largely introduced throughout the country, there will be more profit and less danger to their handlers and to the inquisitive bystanders and bee-keeping will become an unalloyed pleasure.

* * *

The new agricultural building of the North Carolina Agricultural and Mechanical College at Raleigh, was formally dedicated on Sept. 1st. This is one of the finest buildings in the South for instruction in agriculture. The appropriations for the construction of this building were secured only after a hard struggle with the Legislature, but the farmers of the state won just as they have done in New York and other states, and the dedication of this building marks an epoch in the advancement of agricultural education in the South.

In appropriating the money the legislature stipulated that it was to come only from the tax on fertilizers, thus forcing the farmers alone to pay for the building in which to educate their sons, while they had already paid their part for the erection of the mechanical buildings. We quote the following from *The Progressive Farmer and Cotton Plant.*

"The length of the new building is 209 feet; depth, 74 feet. It is three stories in height. The material used is gray pressed brick, with red tile roof. The first floor will be used entirely for animal husbandry work, 4,800 square feet being used for dairying, cheese making, milk testing, etc.,

and 4,800 square feet for live stock judging, butchering, and preparation of meat products. The second floor will contain the class rooms, offices of the department, farm machinery rooms and soil physics laboratory. In the top story will be taught veterinary science, and botany, zoology and bacteriology in their relation to agriculture. The building will be one of the largest and best adapted buildings devoted to agricultural education in the entire country."

This building stands on the summit of a large hill just west of the main group of College buildings and facing the entrance to the State Fair Grounds. The farm of six hundred acres lies adjoining and is practically all in view from the upper windows, the site on the whole being as fine as could be desired.

CORNELL NEWS

CAMPUS NOTES

The Corner stone of the main building of the New York State College of Agriculture was laid on July 27th without formal ceremony. The builders have been instructed to advance the dairy wing as fast as possible. At the present time the walls of the main part of the dairy wing are all finished up to the basement floor. All the walls of the extension of the dairy building are finished up to the main floor. The extension is to be one story high and it is expected that this part will be under cover early in the fall. All the walls of the main central structure are up to the basement floor. Construction work is greatly delayed on account of the difficulty in obtaining laborers. There are 80 men now at work but only 14 of them are bricklayers, a class of artisans most needed.

* * *

The following bulletins have been issued from the Cornell Experiment Station during the summer:

No. 288, Potato Growing, by J. L. Stone;

No. 229, An Orchard Survey of Orleans County, by G. F. Warren under the direction of John Craig.

No. 230, Quality in Potatoes, by John W. Gilmore;

No. 231, The Forcing of Strawberries, Cucumbers, Tomatoes, and Melons, by C. E. Hunn and John Craig.

No. 232, Experiments on the Influence of Fertilizers upon the Yield of Timothy Hay when Grown on Dunkirk Clay Loam in Tompkins County, New York, by J. W. Gilmore and Samuel Fraser.

* * *

During the past summer a co-operative experiment in bean growing has been carried on by the United States Department of Agriculture and the Horticultural Department of Cornell. This is the third and last year of an exhaustive variety test. The object is the standardization of American varieties as well as to determine their horticultural status and practical value. At the Cornell plantation 350 samples were raised which will show probably 150 good varieties. Minute botanical descriptions have been made together with detail photographs of the entire plant, the leaf, the pod, (both dorsal, side view, and cross section), and the dry seed. All the work connected with this test has been most conscientiously carried on by Mr. C. D. Jarvis. This experiment was carried on in duplicate at Washington, D. C. by Mr. W. W. Tracy, Jr., who has made two trips to Ithaca during the summer for the purpose of comparing results with Mr. Jarvis.

* * *

Professor Wing went to a Farmers' picnic in Chenango County and while there met the following Winter Course Students: C. S. Cook, C. E. Green, F. R. Harrington, C. E. Purdy, A. C. Brown, R. S. Meeker, and F. S. Har-

rison. All of these men with the exception of Mr. Brown, who is a buttermaker, are successful and thrifty farmers. Professor Wing says that this picnic was rather unique in that many Cornell banners were displayed.

* * *

The Orchard Survey in several counties in Western New York, which was so successfully carried on by Dr. George F. Warren, has been continued by the graduate students of the Department of Horticulture. Two weeks work of this kind is now a requirement of all graduate students in horticulture. The following have been engaged in this work the past summer: G. W. Hosford, C. S. Wilson, J. E. Coit, C. D. Jarvis and J. E. Howitt. These men report a fair crop of peaches but a very light crop of apples.

* * *

Dr. S. W. Fletcher was married in July to Miss Margaret Ralston of Chattanooga, Tenn. Dr. Fletcher leaves us this fall to accept the chair of Horticulture at the Michigan Agricultural College. The students one and all, and especially the Winter Course men exceedingly regret his departure, yet they gladly extend to him their best wishes for his future success.

* * *

After the close of the Short Dairy Course last spring, B. C. Murray an English student sent a cheese made by him to King Edward of England. His gift was acknowledged through the British ambassador at Washington, who promised that the cheese would be placed on the King's table.

* * *

There has been increasing demand among many of the Winter Course students for more specialized instruction in horticulture. This year the College is prepared for the first time to satisfy this need. Such instruction will be given as will help those persons who have had some experience along this line, to better positions, at the same time instructing the beginner in the salient principles of such a profession.

* * *

The Dairy Department has operated a creamery through the summer for the purpose of developing a milk supply for the winter dairy school, and to give an opportunity for carrying on experiment work.

* * *

Mr. C. A. Rogers, '04, is at present engaged as superintendent of the farms of the James Vick Seed Firm at Despatch, N. Y. Mr. Rogers spent a few days on the Campus during July and says he is highly pleased with his work.

* * *

Professor James Rice is now occupying his new home on Waite Avenue, Cornell Heights.

* * *

Professor C. V. Piper of the Division of Agrostology, United States Department of Agriculture, visited and was much interested in the Timothy breeding Experiment on the University farm.

* * *

Mr. H. L. Ayres of Schoharie County, who took the Dairy Short Course in '04, has been appointed Creameryman under Professor Pearson.

* * *

The first edition of Professor Hunt's book, "The Cereals of America," is exhausted, and a second edition is about to be issued.

* * *

On August 31st, Dean Bailey returned from his somewhat extended trip to California. While there he delivered a series of lectures at the summer school of the University of California. After seeing something of the agriculture throughout the central part of the state, Dean Bailey attended as a delegate the Irrigation Congress held at Portland, Ore.

Professor Wing, whose house was almost destroyed by fire last May, is now back in his home after having spent the summer in Cascadilla Building.

* * *

The Ithaca Weekly Journal of August 10th contains a very interesting column and a half article on the success of a number of men who took the short course in Dairying last winter and have had their salaries raised in consequence.

* * *

Mr. J. Eaton Howitt, '05, of Guelph College, Ont., took special work in Entomology in the University this summer. He is registered for a Masters' degree, his major in horticulture and his minor in Entomology.

* * *

Professor F. A. Waugh, '99 G., of the Massachusetts Agricultural College spent Sept. 9th, 10th and 11th in Ithaca visiting Professor Craig. Professor Waugh later went to Syracuse to judge the professional fruit exhibit at the State Fair.

Mr. L. C. Griffith, who graduated B. S. A. last spring, has been engaged during the summer at Chautauqua, N. Y., as Landscape Architect for the Chautauqua Assembly.

* * *

Professor Hunt spent his vacation camping with his family in the Adirondack Mountains.

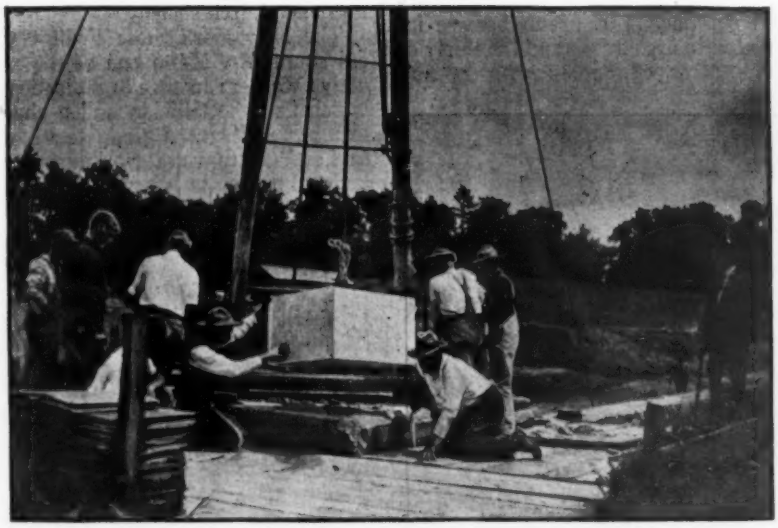

Photo by COUNTRYMAN

THE LAYING OF THE CORNER STONE OF THE NEW YORK STATE COLLEGE OF AGRICULTURE

Herbert A. Hopper, B. S. A. '04, assistant in Dairy Husbandry at University of Illinois, spent two weeks in town.

* * *

The Cornell Chapter of the Alpha Zeta Agricultural fraternity has moved into new and commodious quarters in the Peer house on Thurston Avenue, Cornell Heights.

* * *

Mr. W. C. Baker, '98, B. S. A., returned from France on Aug. 1st. Mr. Baker has been studying art during the past year in Paris, and will be employed on the illustrations of the Cyclopedia of American Agriculture.

FORMER STUDENTS

Ex-'81—Willis T. Mann came as a student to Cornell in 1878. At that time the College was small and its equipment meagre, but as results have shown there was true Cornell spirit even in those days. After two years Mr. Mann left College and returned to the farm. Ever since, he has been a leader in advancing the cause of agriculture in his county both in theory and practice. Mr. Mann became interested in orcharding and his thirty or more acres of apple orchards, and

WILLIS T. MANN, EX-'81

large peach and plum orchards bear ample testimony to the applicability of book farming. Mr. Mann does not farm on the side, but lives in a handsome dwelling in the midst of his orchards at Barker, N. Y., and devotes his entire time to the care of his trees. The home farm is called "Evergreen Farm," and very appropriately. One of its striking features is a magnificent windbreak of Norway Spruce bounding it and sheltering the orchard on the west side. Another feature of the farm is the lawn which is spacious and of almost park like dimensions. On this lawn, grouped with excellent taste are splendid specimens of leading conifers together with a large collection of the best deciduous shade trees and shrubs. Here the smooth glossy leaves of the Southern persimmon mingle with the feathery tufts of the Northern tamarack. The neighbors show their appreciation of this farm park by using it freely for Sunday School picnics and church socials.

The New York State Fruit Growers count Mr. Mann one of the most active workers in that organization of which he is statistician and a charter member. When the graduate students in horticulture were working on the orchard survey in Niagara County the past summer, they were most royally entertained at Mr. Mann's delightful home while working in that neighborhood.

'73, B. S. A.—C. Y. Lacy of Long Beach, Cal., sends to the *Countryman* his best wishes for a long life of successfulness.

'81, B. S. A.—Professor G. C. Watson, who occupies the chair of Agriculture at the Pennsylvania State College, was on the Campus for a few days visiting Professor Wing. Later, in company with Professor Wing, he took an automobile trip through Seneca and Wayne counties.

Ex-'81—Nye Hungerford is running a dairy farm, located about two miles east of Ithaca. The Cornell spirit has been well inherited by his two sons, Roy E. Hungerford, '99, W. and Jay C. Hungerford ,'05, B. S. A.

Ex-'81—Charles E. Thomas is at present living in Waterloo, N. Y. Besides breeding fine Guernseys Mr. Thomas milks about 35 cows for the retail trade of Waterloo.

'88—'90.—Graduate in Chemistry. W. A. Withers, A. M., who was fellow in chemistry during the year of 1890, at present occupies the chair of Chemistry at the North Carolina College of Agriculture and Mechanic Arts. We regret to learn of the death of his wife on August 20th of this year.

'91, B. S. A.—Horace Atwood, Agriculturist at the West Virginia Experiment Station, visited the Campus this summer.

'92, B. S. A.—Mr. Furman Lloyd Mulford, who was recently married to Miss Edith Eyre of Yardly, Pa., is now Superintendent of Parks at Harrisburg, Pa.

'90, Special—Professor Burnette of Louisiana Agricultural College was in town a few days during the latter part of August. Professor Burnette has been spending part of the summer at Sodus Bay, N. Y.

'94, Special—Thomas R. Hopkins is now engaged in farming at Willow Creek, N. Y.

'98, Graduate—Mr. George Henry Deuell ,a graduate student in 1898, was married this last spring to Miss Agnes Goerke of Brooklyn, N. Y.

'98, Special—Mr. Warren Shinn, who has been living for several years at Woodstown, N. J., was married on the 9th of August to Miss Bertha Becker of the same place.

'99, B. S. A.—Since leaving the University, Daniel B. Clark has spent part of his time in the employ of the Genesee Pure Food Company of his home town, LeRoy, N. Y. In the spring of 1900, he occupied the position of chief clerk to the Superintendent of Agriculture, Live Stock and Dairy Products at the Pan American Exposition and remained for some time afterwards under Superintendent F. A. Converse, another Cornellian. He is now one of the rural free delivery carriers of his township in order to be near his father who is failing in health.

'99, B. S. A.—Heinrich H. Hasselbring has charge of the Plant House, under Professor Barnes in the Botanical Department of the University of Chicago.

'99, B. S. A.—Walter Mulford remained in College after graduation taking the Forestry Course from which he graduated in 1901. While here he was elected to the Sigma Xi. From that time until July, 1904, he was forester to the Connecticut Agricultural Experiment Station, besides being the State Forester. Since July, 1904, he has been Forest Agent of the United States Bureau of Forestry, engaged in a study of Southern hardwoods. Mr. Mulford has occupied important positions in several Forestry Associations. He has just accepted the appointment of Assistant Professor of Forestry in the Forestry School of the University of Michigan at Ann Arbor.

'99, B. S. A.—Edwin R. Sweetland, who was a Varsity man in both crew and football while in college, has made coaching in athletics his profession. For some time past he has been coach in rowing at Syracuse University and is now very successful as coach in several different lines at the Ohio State University.

'99, Special—George S. Clothier is now in the service of the United States Department of Agriculture. Although he was here only for a short time, he says he will never forget the good times at the Lazy Club, and regards his study under Professor Bailey as the most profitable time he has ever spent.

'99, Special—W. H. Hodges, after he left us, taught Botany in the Louisiana Industrial Institute. In 1901, he took a general course in Agriculture at the Louisiana State University and has since been engaged in cotton raising at Elm Grove, La.

'99, W., and '04, Dairy—W. S. Markham who took the short agricultural course and also the dairy course has found both of great value. He is now managing one of his father's farms at Kennedy, N. Y., and is teaching in the public schools during the fall and winter months.

'00, B. S. A.—Franklin Sherman, Jr., has resigned his position as State Entomologist at Raleigh, N. C., and has gone to accept the chair of Entomology and zoology in the Agricultural College at Guelph, Ont.

'00, B. S. A.—A. W. Stephens, who for sevaral years past has been managing the Cornell Co-operative society

store, has gone to Urbana, Ill., to take charge of a similar enterprise at the State University.

'00, B. S. A., '01, A. M.—G. M. Bentley, who has been for some time past Assistant State Entomologist at Raleigh, N. C., has resigned to accept the position of Assistant State Entomologist at Knoxville, Tenn.

'00, D.—H. J. Cooper, who was at the George Junior Republic for a year and a half is now assistant farm superintendent at the Lyman School for Boys, Westboro, Mass.

'01, D.—Cecil Royce contributes his support to the *Countryman* from Berkshire N. Y.

'03, B.S.A.—E. J. Glasson, who for some years past has been in the winter tomato and truck business in Southern Florida, has accepted a position with the United States Department of Agriculture as expert with the Bureau of Plant industry. Mr. Glasson spent September 5th on the Campus with friends.

'02, D.—Manley Clark is running a creamery during the summer months at Ironville, Essex County, N. Y.

'04, A. B.—C. W. Howard has gone to take the position of Assistant Entomologist of the Transvaal. As an undergraduate, Mr. Howard specialized in Entomology and since graduation has been laboratory assistant. His work in this new field will be under another one of Professor Comstock's students, C. B. Simpson, '99, Entomologist of the Transvaal.

'04, B. S. A.—Albert R. Mann is at present at Ithaca, employed as secretary to Professor Bailey on the Cyclopedia of American Agriculture.

'04, Special—The wedding of Miss Helen Adelaide Ellsworth to Mr. M. C. C. VonLoben Sels, '04, B. S. A., occurred on Wednesday, May 31st, at Esperanzo Farm, New Hartford, Conn. They are now at home at Vordu Ranch, Sacramento River, Cal. For the past two years Mrs. VonLoben Sels has been a special student in Agriculture.

Ex.-'04—J. H. Bluford is now head of the Departments of Agriculture and Chemistry at the Colored A. and M. College at Greensboro, N. C. In 1903, he established a short agricultural course of five weeks and has also organized a conference of colored farmers which is held annually at the A. and M. College during January.

'04, Special—R. S. Cushman, who was with us for the early part of last year, is now in charge of an estate at Greenwood, Mass. Here, in January last, he was married to Miss Ethel O. Staples.

'04, W.—Charles Huff, of Moravia, is now on his home farm applying the principles that he learned here, especially as regards farm buildings.

'04, W.—John A. Pease is engaged in dairy and fruit farming at Owego, N. Y. He considers the winter spent here at Cornell as largely responsible for his success.

'05, B. S. A.—Lawrence G. Dodge is now traveling in the interest of the Office of Farm Management, Bureau of Plant Industry, United States Department of Agriculture. Mr. Dodge spent several days in Ithaca during August conferring with Professor Stone concerning farm management in Western New York.

'05, A. B.—Herbert A. Jackson, who was assistant in Botany at Cornell last year, goes to the Delaware Experiment Station at Newark to take the position of mycologist.

'05, M. S. A.—R. S. Woglum has left for Raleigh, N. C., where he is assistant state entomologist. Mr. Woglum has full charge of affairs, as the office of state entomologist lately held by Franklin Sherman, Jr., is now vacant.

'05, D.—M. Johnson is engaged at the Donnifield creamery near Deerfield, N. Y. We are sorry to hear that Mr. Johnson has been seriously injured in the knee by a kicking horse.

'05, D.—H. Seymour Merry is now his father's assistant at Merry's cheese factory at Verona, N. Y. They are having a promising season, 18,000 pounds of milk being received daily.

CORNELL UNIVERSITY

College of Agriculture

The College of Agriculture is one of several co-ordinate colleges comprising Cornell University. The work of the College of Agriculture is of three general kinds: The regular teaching work; the experiment work; the extension work. The courses of instruction fall in the following groups:

1. Four-year course, leading to the degree of Bachelor of the Science of Agriculture (B. S. A.). As a variation, the last two years may be chosen in subjects pertaining to Landscape Architecture and Out-door Art. In the Graduate Department of the University students may secure the Master's and Doctor's degrees (M. S. A., and Ph. D.)

2. Special two year courses. (a) Agricultural Special. (b) Nature-Study Special.

3. Winter-Courses of 11 weeks: (a) General Agriculture. (b) Dairy Industry. (c) Poultry Husbandry. (d) Horticulture. (e) Home Economics.

Staff of the College of Agriculture. 1905.

L. H. BAILEY, Director.

I. P. ROBERTS, Professor of Agriculture, Emeritus.

Agronomy:
T. F. HUNT,
J. W. GILMORE,
J. L. STONE,
S. FRASER,
G. W. TAILBY.

Animal Husbandry:
H. H. WING,
M. HARPER,
J. E. RICE (Poultry Husbandry).

Dairy Industry:
R. A. PEARSON,
H. C. TROY,
W. W. HALL,
W. E. GRIFFITH,
H. L. AYRES.

Horticulture:
JOHN CRAIG,
C. S. WILSON.
C. E. HUNN,

Soils:
E. O. FIPPIN,
C. F. SHAW.

Agricultural Chemistry:
G. C. CALDWELL,
G. W. CAVANAUGH,
S. A. BIZZELL.

Entomology:
J. H. COMSTOCK,
M. V. SLINGERLAND,
A. D. MCGILLIVRAY,
W. A. RILEY,
T. J. HEADLEE,

Plant Pathology:
G. F. ATKINSON,
H. H. WHETZEL.

Rural Economy:
L. H. BAILEY,
G. N. LAUMAN.

Outdoor Art:
WARREN MANNING,
BRYANT FLEMING.

Agricultural Meteorology:
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Severest of all Separator Tests

Just facts—that's all you want. Facts prove **Tubulars outwear all other cream separators** five to ten times over.

The self oiling Dairy Tubular. The most durable, easiest cleaned, closest skimming, most perfectly lubricated separator made.

52 Years' Work in One

On August 2nd, 1904, we started a No. 9 hand driven Dairy Tubular, rated capacity 900 lbs. per hour, on the hardest test a separator was ever put to—a continuous running endurance test to last at least one year. This Tubular has now run 50 hours a week for 52 weeks—one full year. As every week of this test has been equal to a year's service in a ten cow dairy, this Tubular has done work equal to 52 year's actual service in a ten cow dairy. It concluded the year's test Aug. 2, 1905, finishing almost as good as new. **This record is astonishing. No other separator made could stand it.**

52 Years' Work--75 Cents Repairs

Hours run	2,600
Pounds separated	2,340,000
Turns of crank	6,837,480
Turns of bowl	2,496,000,000
Oil used	6 1-2 quarts
Time oiling	About 8 min.
Time adjusting	10 minutes
Repairs	75 cents

Think of It

After 24 weeks, two balls, in the frictionless bearing supporting the bowl, showed wear. This was natural, for each had rolled over 32,000 miles. We renewed the entire set of nine balls in this bearing at a total of only 75 cents and ten minutes adjusting, which made the Tubular as good as new. Think of it! Work equal to 52 years in a ten cow dairy and only 75 cents for repairs. All Tubulars are equally durable. **Catalogue D tells about them.**

THE SHARPLES SEPARATOR CO.

WEST CHESTER, PA.

TORONTO, CAN. CHICAGO ILL.